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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/551,799	04/18/2000	Yoshihiro Kota	P/1909-130	2585

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EXAMINER

VITAL, PIERRE M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/551,799

Applicant(s)

KOTA, YOSHIHIRO

Examiner

Pierre M. Vital

Art Unit

2188

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-27, 150-154, 157-161 and 164-168 is/are rejected.
7) ☒ Claim(s) See Continuation Sheet is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-154,157-161,164-168,171,172,174-178,181-185,188,189,191-195,198-202,205,206,208-212,215-219,222-226,229-233,236-240,243,244,246-250,253-257,260,261,263-267,270-274,277,278,280-284 and 287-291.

Continuation of Disposition of Claims: Claims objected to are 28-149,171,172,174-178,181-185,188,189,191-195,198-202,205,206,208-212,215-219,222-226,229-233,236-240,243,244,246-250,253-257,260,261,263-267,270-274,277,278,280-284 and 287-291.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed March 9, 2004 in response to PTO Office Action mailed December 9, 2003. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.

2. Claims 1-154, 157-161, 164-168, 171, 172, 174-178, 181-185, 188, 189, 191-195, 198-202, 205, 206, 208-212, 215-219, 222-226, 229-233, 236-240, 243, 244, 246-250, 253-257, 260, 261, 263-267, 270-274, 277, 278, 280-284, 287-291 have been presented for examination in this application. In response to the last Office Action, claims 1, 3, 5, 7-14, 17, 19, 21, 24, 26, 28-154, 158-161, 164, 171, 172, 174-178, 181-185, 188, 189, 191-195, 198-202, 205, 206, 208-212, 215-219, 222-226, 229-233, 236-240, 243-244, 246-250, 253-257, 260-261, 263-267, 270-274, 277-278, 280-284, 287-291 have been amended. No claims have been canceled or added. As a result, claims 1-154, 157-161, 164-168, 171, 172, 174-178, 181-185, 188, 189, 191-195, 198-202, 205, 206, 208-212, 215-219, 222-226, 229-233, 236-240, 243, 244, 246-250, 253-257, 260, 261, 263-267, 270-274, 277, 278, 280-284, 287-291 are now pending in this application.

Art Unit: 2188

3. The rejection of claims 1-13, 14-20, 21-27, 150-154, 157-161 and 164-168 under 35 USC 102(b) under Yoshioka et al (5,835,963) (Paper No. 7) has been withdrawn due to the amendment filed March 9, 2004. New ground(s) of rejection follow herewith.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13, 14-20, 21-27, 150-154, 157-161 and 164-168 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. (US5,835,963) and Sekiguchi et al. (US6,711,605).

As per claims 1, 5, 12 and 13, Yoshioka discloses a memory address space extension device [*addresses are expanded by use of an address space identifier; col. 9, lines 60-61*] comprising a definition table defining an access right of a task ID (identification) with respect to data area [*the process number ASID in the TLB is used as memory protection information; col. 26, lines 17-19*]; a task ID register for storing therein the task ID of a task during execution [*the space number asid of the current process is set in the register 51; col. 24, lines 30-32*]; a judgement means for judging as to whether or not it is capable of being permitted that the task indicated by the task ID accesses the data area indicated by the data area ID, the judgement being made with reference to said definition table [*mismatch between*

current process asid and process number ASID stored in TLB is utilized for detection of TLB protection fault exception; signal 503 detects a TLB protection fault exception when driven High, there is a mismatch between process numbers; col. 26, lines 17-55;].

However, Yoshioka does not specifically teach said judgement means judges whether or not said task is permitted access according to an interruption processing number as recited in the claims.

Sekiguchi discloses granting access right to data requested by a task according to interruption processing number to retain performance and configure a multi-OS environment with ease (col. 6, lines 33-47; col. 11, lines 58-67; col. 2, lines 51-55). Since the technology for implementing granting access right to data requested by a task according to interruption processing number was well known and since granting access right to data requested by a task according to interruption processing number allows the system to retain performance and configure a multi-OS environment with ease, an artisan would have been motivated to implement granting access right to data requested by a task according to interruption processing number in the system of Yoshioka. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use granting access right to data requested by a task according to interruption processing number because it was well known to allows the system to retain performance and configure a multi-OS environment with ease as taught by Sekiguchi.

As per claims 2 and 6, Yoshioka discloses an address operational means for converting said CPU address into an extended address [*addresses are expanded by use of an*

address space identifier; col. 9, lines 60-61], and a memory having the extended address converted previously, when said judgement means judges that judgement result according to said judgement means is a result that the task during execution accesses the data area, said address operational means executes said conversion processing while causing said memory with extended address to support [*areas marked as mapped are subject to translation based on a comparison of current process asid and process number ASID stored in TLB*; col. 9, lines 63-65; col. 25, lines 10-31].

As per claim 3, Yoshioka discloses a definition table that causes combination that access is permissible or in-permissible with respect to read and/or write to said data area respectively to be defined [*access right to areas P1 through P4 are checked to detect address error*; col. 21, lines 50 – col. 22, line 6].

As per claim 4, Yoshioka discloses a preparation means for preparing said definition table [Fig. 21, col. 21, lines 49-53].

As per claims 7 and 150, Yoshioka discloses a memory address space extension device [*addresses are expanded by use of an address space identifier*; col. 9, lines 60-61] comprising a definition table forming means for forming said definition table [Fig. 21, col. 21, lines 49-53]; a definition table defining an access right of a task with respect to data area [*the process number ASID in the TLB is used as memory protection information*; col. 26, lines 17-19]; an access right judgement means for judging whether or not it causes the access right to the data area requested by the task to be given with respect to the task

according to said definition table [*mismatch between current process asid and process number ASID stored in TLB is utilized for detection of TLB protection fault exception*; col. 26, lines 17-55].

As per claims 8, 9 and 151-152, Yoshioka discloses a definition table that defines as to whether or not said task possesses an access right for accessing prescribed data area in every task ID given to the task [col. 21, lines 51-col. 22, line 2; col. 24, lines 9-16].

As per claims 10, 11 and 153-154, Yoshioka discloses an access right judgement means judges whether it causes the access right to the data area requested by said task to be given according to said task ID, and the data area ID indicating the data area requested by said task [col. 24, lines 9-16].

As per claims 14-20 and 157-161, Yoshioka discloses a definition table that defines whether or not it causes access to be permitted with respect to said prescribed data area in every said task [col. 21, lines 59-62].

As per claims 21-27 and 164-168, Yoshioka discloses a definition table defining causing no-access to be permitted with respect to said prescribed data area in every said task [col. 21, lines 62-67].

Allowable Subject Matter

6. Claims 28-149, 171, 172, 174-178, 181-185, 188-189, 191-195, 198-202, 205-206, 208-212, 215-219, 222-226, 229-233, 236-240, 243-244, 246-250, 253-257, 260-261, 263-267, 270-274, 277-278, 280-284 and 287-291 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

(a) The prior art of record does not teach or suggest "an interruption number generation means for generating interruption number with respect to interruption processing according to hardware" in combination with the other elements set forth in the claimed invention.

(b) The prior art of record does not teach or suggest "an interruption number generation means for generating interruption number with respect to interruption processing according to software" in combination with the other elements set forth in the claimed invention.

(c) The prior art of record does not teach or suggest "an address operational means for converting a CPU address into an extended address, and a memory having the extended address converted previously wherein said address operational means causes said CPU address to be converted into the extended address when said task is

permitted to access a data area according to an access right judgement means, before sad memory with extended address supports said address operational means" in combination with the other elements set forth in the claimed invention.

Response to Arguments

8. Applicant's arguments with respect to claims 1-13, 14-20, 21-27, 150-154, 157-161 and 164-168 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach granting access right to data requested by a task according to interruption processing number.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2188

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2188

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pierre M. Vital
Pierre M. Vital
Art Unit 2188
April 14, 2004

Jack A. Lane
JACK A. LANE
PRIMARY EXAMINER